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ABSTRACT

In 1989, the University of Tennessee, Knoxville, brought together six diverse public institutions in Tennessee to study the implications of the quality improvement methods of Edwards Deming and others for their own assessment programs. Later, five of these institutions--a technical institute, a community college, a comprehensive university, a doctorate-granting institution, and the state's land-grant and research university--built upon an alumni survey program to develop a method for surveying the employers of graduates responding to this survey. This paper provides both a description and a critique of this method. In spring 1990, each institution sent alumni surveys to its 1987-88 graduates, following up with a letter to each employed respondent requesting permission to mail a questionnaire to his/her supervisor. On receiving permission, the employer questionnaire was sent to the supervisor with a copy of the graduate's signed permission statement. Data on employers' opinions concerning the importance of various aspects of the graduate's education and performance were summarized for all participating institutions. Results indicated that the study produced an employer survey capable of serving the interests of two- and four-year institutions and for attracting a high rate of return on the part of employers. The methodology also incorporated an alumni questionnaire that contributed important information about alumni background characteristics and college experiences. However, relatively few alumni gave permission for subsequent contact with employers, and findings of the employer survey were so positive that they appear to be systematically biased and suggest questions of survey utility. Study experience suggests that no matter how good the questionnaire, this methodology has inherent problems. (Contains 34 references.) (JB)

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Critique of a Method For Surveying Employers

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Colleges and universities are seeking ways to improve the quality of their programs and services and to demonstrate that quality to prospective students. Seymour (1991) asserts that institutions must have hard evidence of how they are doing in order to improve, and that measurement provides the feedback needed for improvement—the basis for a knowledge-driven organization.

Most freshmen enter college to prepare for a career. Astin's annual Freshman Survey reveals that more than 75 percent of first-time freshmen say they are in college to "get a better job" and "to make more money" (Astin, Korn, & Berz, 1990). If this is the case, then it behooves institutions hoping to attract students to assess the job they are doing in preparing their graduates for employment and to pay attention to the findings. A survey program that periodically asks graduates and their employers about the job preparation the graduates have received from their home institution can play a vital role in providing the feedback for improvement that a quality-conscious institution demands from its comprehensive outcomes assessment program.

In 1989, the University of Tennessee, Knoxville (UTK) was instrumental in bringing together six diverse public institutions in Tennessee to study the implications of the quality improvement methods of Edwards Deming (1986) and others for their outcomes assessment programs. Under the auspices of a grant from the Fund for the Improvement of Postsecondary Education (FIPSE), five of these institutions built upon an alumni survey program in which all were involved to develop a method for surveying the employers of graduates responding to the alumni survey. The purpose of this paper is to provide a description of this method and a critique of its use as a method for surveying employers.

RELATED STUDIES

A review of the literature on the use of employer surveys in higher education reveals that most studies are unpublished and based on the experience of a single institution. Two-year institutions seek employer feedback more frequently than do four-year institutions, but the studies reported by both sectors are useful for the perspectives they provide on survey methodology and attendant response rates and analyses of employer responses.

Survey methodology and response rates

Two institutions report having used what might be called a "broadside" approach to surveying—sending questionnaires to employers only without identifying any particular graduates. A survey of community college employers in New York yielded a 47 percent response rate using placement records to obtain the names of the employers (Francis & Jones, 1976). St. Louis Community College at Forest Park identified employers from responses to an alumni survey (Kapraun & Nienkamp, 1985), a technique that attracted responses from 39 percent of the employers.

In an attempt to obtain more specific information, many two-year colleges have linked their surveys of employers to named graduates. This approach necessitates obtaining the graduate's permission to question the employer, and the additional step lowers

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generalizability because those who grant permission may differ in important ways from those who do not. Institutions have employed various techniques to resolve these problems. Some have obtained permission as part of a mailed alumni survey, a technique yielding permission rates of 34 to 40 percent (Gell & Jones, 1975; Montemayor, Hardin, & Reed, 1986; Head, 1990). Lorain County Community College attracted a 46 percent return by mailing postcards to alumni explaining the survey and asking for permission to contact the graduate's employer (Isbell & Jonas, 1976). Using telephone interviews with former students, Johnson County Community College obtained an 80 percent permission rate (Conklin, 1990), highest of all techniques described in the current literature.

Regardless of the method used to obtain permission, the response rate on the part of employers has been high (Head, 1990; Case, 1986; Conklin, 1990; Maryland State Board for Community Colleges, 1986). Employers respond at the rate of 60 to 90 percent when asked for their opinions by institutions of higher education. Response rates are highest when the survey mailing includes a copy of the graduate's signed statement granting permission for the employer to respond. (Head, 1990).

The literature suggests that four-year colleges and universities have much less experience with employer surveys than do two-year institutions, and that their techniques generally yield lower response rates. For instance, four-year institutions identifying employers through placement records have obtained response rates approximating 18 percent (Knoblauch & German, 1989; Atkins & Kent, 1988). By seeking permission to contact employers through a telephone interview with alumni, Harper College obtained permission from 72 percent of its graduates and a response from 78 percent of their employers (Lucas, 1984).

Survey Results

Surveys of employers generally produce positive findings, regardless of the type of institution or the survey methodology applied. Employers rate most employee attributes as important and most specified employees as good or very good.

Technical, junior, and community colleges typically ask employers to assess the quality of their students' job preparation and job performance. Employers of two-year college graduates consistently report high satisfaction with both preparation and performance, and indicate that they would hire the graduate again if the opportunity arose (Gell & Jones, 1975; Kapraun & Nienkamp, 1985; Montemayor, Dominguez, & Reed, 1985; Isbell & Jonas, 1976; Case, 1986; Allred & Wingfield, 1982; O'Grady, 1990; Maryland State Board, 1986; Conklin, 1990; Francis & Jones, 1976).

Employers give highest ratings to two-year graduates' technical skills; basic skills such as reading, writing, and arithmetic; and readiness for additional responsibilities (Maryland State Board, 1986; Kapraun & Nienkamp, 1985; Isbell & Jonas, 1976). Ability to communicate with supervisors, general communication skills, and ability to get along with fellow workers also receive high ratings (Gell & Jones, 1975; Isbell & Jonas, 1976; Kapraun & Nienkamp, 1985). The most highly rated traits or attitudes are general attitude toward work, willingness and ability to learn, acceptance of responsibility, personal initiative, ability to learn new tasks, and dependability (Gell & Jones, 1975; Montemayor et al, 1986; Kapraun & Nienkamp, 1985; Isbell & Jonas, 1976).

Survey data collected at four-year institutions reveals strong interest in employers' opinions of the valuable attributes of a college education. According to employers, these attributes can be divided into three categories—areas of knowledge, skills, and attitudes or traits. The most valuable areas of knowledge are basic adult literacy, technical skills related to the job and the ability to apply one's knowledge (Mentkowski, O'Brien, McEachern, & Fowler, 1982; Edge, 1985; Lindquist, 1985; Young, 1986; Cohen, 1984). Valuable skills identified by employers are those related to communication, ability to work with people, computing, organization/management, and research/investigation (Knoblauch & German, 1989; Lindquist, 1984; Young, 1986; Murphy & Jenks, 1983; Atkins & Kent, 1988; Edge, 1985). Finally, the valuable traits or attitudes are dependability, attitudes toward work, trustworthiness, attitudes toward self and others, and self-motivation (Young, 1986; Mentkowski et al. 1982; Edge, 1985; Murphy & Jenks, 1983).

PURPOSES OF THIS RESEARCH

This study was designed to serve three purposes: 1) To develop a questionnaire to tap opinion about graduates' preparation and a method of administration that could be used by **both** two-and four-year institutions of higher education; 2) to determine employers' priorities for the content of a college education for their employees and to compare those priorities by institutional type and occupational classification. 3) to determine employers' perceptions of graduates' preparation and skills and to compare these perceptions with some of those expressed by the graduates themselves, and at the same time, to analyze these perceptions by institutional type and occupational classification. A limited discussion of the development of this survey and a more thoroughly developed critique of its performance follows. The survey method, response rates and findings are compared with corresponding information from previous studies.

METHODS

The employer survey for this study was developed by a consortium of five public institutions in Tennessee, including a technical institute, a community college, a comprehensive university, a doctorate-granting institution, and the state's land-grant and research university. Because the Tennessee

Higher Education Commission has required assessment of alumni opinion as part of its state-wide performance funding policy since 1987, each of these institutions was using in alternate years a common survey for all alumni who had completed their studies two years previously (Banta, 1988). The five cooperating institutions decided to couple the employer survey with the current administration of the alumni survey in order to increase the amount of information that the study could include about the graduates whose employers responded to the employer survey.

Questions for the survey instrument were derived by the authors from related literature ("Employer Input," 1990; Gardner, Kozlowski, & Broadus, 1988; Charner, 1988; Eisenberg, Monge, and Farace, 1984; Phipps and Romesburg, 1988; Raza & Carpenter, 1987) and were extensively reviewed by faculty and staff at all of the institutions in the consortium. Section One of the questionnaire asked about employers' perceptions of the relative **value** of the courses and related academic experiences typically offered on a college campus (see items in Table 1). Section Two listed employee traits and skills and asked employers to rate each in two ways, first in terms of its **importance** in the job performance of a person holding the position held by the graduate specified, and second in terms of that **graduate's performance** as compared "to others you have employed in similar positions" (see items in Table 2). Section Three asked employers to speculate about the satisfaction of the identified employee with his/her work and pay, then posed some global questions about the employee's performance and preparation.

The items in the questionnaire for alumni were designed to serve the state's need to collect evidence of institutional accountability. They included the same questions about satisfaction with type of work and pay as were asked of employers. The graduates also were asked about the extent of their community participation and about their satisfaction with many aspects of their academic and social experiences in college. These responses were supplemented by cognitive achievement scores and additional demographic information derived from institutional student information systems.

In the spring of 1990, each institution mailed alumni surveys to all its graduates of the 1987-88 academic year. One week after the initial mailing, a postcard reminder notice was mailed to non-respondents. A week after that, the questionnaire was sent again, with a new cover letter, to graduates who had not yet responded. Once the alumni survey response was obtained, each employed respondent was sent a letter explaining the purpose of the study of employer opinion and requesting permission to mail a questionnaire to his/her immediate supervisor. In addition, the graduate was asked to provide the supervisor's name and address, the title

TABLE 1
1990 ALUMNI / EMPLOYER SURVEY
MEAN RESPONSE TO VALUE ITEMS
ALL INSTITUTIONS

Question	Mean Response
Courses emphasizing communications skills	2.89
Courses specific to the area of employment	2.79
Computer experience	2.67
Specific work experience in field	2.64
Courses in mathematics	2.59
General work experience	2.58
Internship, co-op, or field experience	2.57
Courses in Business	2.36
Courses in statistics	2.32
Courses in the humanities	2.29
Knowing how to use the library	2.22
High grade point average	2.17
Courses in social sciences	2.14
Involvement in a professional association	2.11
Extracurricular activities	1.89
Courses in natural sciences	1.87
Courses in fine arts	1.51
Courses in foreign languages	1.38

TABLE 2
1990 ALUMNI / EMPLOYER SURVEY
VARIMAX ROTATED FACTOR MATRICES
IMPORTANCE FOR POSITION AND PERFORMACE OF GRADUATES
UTK ONLY

Importance items	Interpersonal	Technical	Basic Skills
Planning projects	.04576	.43202	.29967
Speaking effectively	.05482	-.01571	.69490
Writing effectively	.16206	.05706	.67857
Reading effectively	.03863	.03251	.72002
Listening effectively	-.09025	.23161	.35978
Defining problems	.06377	.51209	.30425
Solving problems	.22942	.37034	.13333
Understanding written information	.21393	.22403	.27982
Processing and interpreting numerical data	-.05576	.70586	-.02522
Working with computers	.01549	.60325	-.10176
Applying job related technical skills	.00582	.64673	-.00731
Thinking Creatively	.29138	.40150	.06791
Working Cooperatively	.41437	-.06300	.33335
Leading others	.46027	.36997	.28939
Adjusting to new job demands	.52560	.09177	.09141
Being dependable and on time	.69573	-.04351	-.11410
Working under pressure	.65420	.12314	-.05182
Working with minimal supervision	.63178	-.01181	.02250
Handling several tasks at once	.58056	.09948	.14845
Making decisions under pressure	.63290	.07869	.03202
Working with people from diverse backgrounds	.56182	.42392	-.03150
Performance Items			
Planning projects	.39340	.40435	.40659
Speaking effectively	.18414	.05825	.72990
Writing effectively	.04127	.30155	.74522
Reading effectively	.25326	.22443	.66737
Listening effectively	.51650	.09308	.37439
Defining problems	.36461	.47621	.47326
Solving problems	.38489	.51652	.38215
Understanding written information	.31582	.43396	.30347
Processing and interpreting numerical data	.07941	.70284	.15636
Working with computers	.17759	.65608	.10368
Applying job related technical skills	.17914	.71483	.06951
Thinking Creatively	.28589	.50675	.27218
Working Cooperatively	.58329	-.02831	.35552
Leading others	.55113	.30703	.27887
Adjusting to new job demands	.57679	.30896	.17568
Being dependable and on time	.61140	.11908	.19079
Working under pressure	.76174	.25238	.08938
Working with minimal supervision	.73505	.33925	.09829
Handling several tasks at once	.68390	.42416	.15069
Making decisions under pressure	.66595	.40359	.13954
Working with people from diverse backgrounds	.58560	-.00753	.36928

of the job in which he/she was employed, and a description of his/her work-related duties. The follow-up mailing to graduates was necessary to avoid violating the regulations governing the standardized method of administering the state-wide alumni survey.

Upon receiving permission from the graduate, the employer questionnaire was sent to the graduate's supervisor with a copy of the graduate's signed permission statement. A postcard follow-up after one week and the full mailing after two weeks were used to encourage employer response.

Data on employers' opinions concerning the importance of various aspects of the graduate's education and performance were summarized for all participating institutions. In addition, all institutions used a common method of classifying the jobs of graduates so that cross-institutional analyses by occupational classification could be made (Lehr, 1991). However, only the data on graduates of the research university (UTK) were used to examine structural characteristics of the survey because more background data on graduates could be obtained at that institution than at the others.

Characteristics of Respondents

The rate of return for the population of 1988 graduates was 53 percent at UTK, and between 21 and 50 percent at the other institutions. Seventy-eight percent of the UTK respondents were employed, and 21 percent of these employed graduates granted permission to contact their employers. The average response rate for employers of all the institutions' graduates was 91 percent. These response rates were within the ranges reported in previous studies.

UTK graduates who responded to the alumni survey had slightly higher entering ACT scores and grade-point averages than non-respondents, but the differences did not meet a test of practical significance that is applied throughout this study, that is, there is a difference of more than five percent between the statistics in question. Graduates giving permission for their supervisor to receive a questionnaire did not differ on any known demographic variables from those who did not. Those giving permission were slightly more satisfied with their work, but, as Head (1990) also concluded, the difference was not practically significant.

Employer Responses

Consistent with the findings reported in the literature, employers' responses across the institutions making up the consortium were strong and positive. Their ratings produced little variation among items in the scales of the questionnaire.

Valuable aspects of a college education. Asked about aspects of a college education that were of value to a person holding the job of the graduate identified for them, employers rated all but 4 of 18 items somewhat to very valuable, that is, between 2 and 3 on a 3-point scale (see Table 1). Courses emphasizing oral and written communications skills were deemed most important, followed by courses specific to the area of employment, computing experience, and paid work experience in the field. Courses in foreign languages, fine arts, and natural sciences, and extracurricular activities, were the four items receiving mean ratings below 2 on the 3-point scale.

Differences were found between two-year and four-year institutions in terms of employers' responses to just three of the items bearing on value of college experiences. Employers of four-year graduates considered extracurricular activities and courses in foreign languages and fine arts to be of more value to successful job performance of the graduates they had hired than did employers of two-year graduates. On more than half of the items describing valuable college experiences, responses differed by occupation of employee. Courses in business were valued most by employers of graduates in sales, administrative, and clerical fields. Employers of writers and artists and "other professionals" saw more value than did employers of other occupational groups in knowing how to use the library, engaging in an internship or field experience, and taking courses in foreign languages, fine arts, humanities, and courses specific to the area of employment.

Important employee traits. In terms of importance in the successful job performance of a person holding the position of the identified graduate, all but one of 21 employee attributes and behaviors were rated 2.5 or higher on a 3-point scale. Leading the list at 2.94 was "listening effectively," last was "leading others." No differences were found between employers of two-year and four-year graduates in terms of the importance they attach to worker traits and skills. However, there were differences on almost half of these items on the basis of occupational category. Managers are perceived to need the highest levels of the most diverse array of skills; on six of ten items, employers' ratings of the importance for managers is highest or second-highest among the eight occupational categories. Employers of graduates working in sales deem it most important that these workers be able to speak effectively and make decisions under pressure. Employers apparently associate word processing with the skills of "working with computers" and "processing...data" since their ratings indicate that these skills are most important for workers in clerical occupations.

Employee performance. Every rating of employee performance on the 21-item scale in Section Two was above 2.8, that is, in the range of good to excellent on a 4-point scale. Employers of 4-year graduates view their employees as more competent at complex and integrative skills than do employers of two-year graduates. Just two items showed differences by occupational category—clerical workers perform most competently in dealing with computers, and managers are best at leading others.

Satisfaction with work and pay. Graduates employed in their fields are more satisfied with their jobs than are those not so employed. There is a low but significant correlation between graduates' levels of satisfaction with their work and with their pay and employers' perceptions of these levels of satisfaction.

Employers' global assessments of graduates as employees. Employers of the graduates of the research university were more likely to say they would hire the identified graduate again and promote the graduate; however, there was no clear advantage for four-year institutions on these two global items. Nevertheless, employers of four-year graduates did perceive that these employees possessed more of the characteristics they expected of college graduates than did employers of two-year graduates. Perhaps as important as the significant differences that were found were those that were not significant: there were no differences among institutions in terms of employers' global ratings of job performance, quality of general education preparation, or education in the area of specialization. In addition, there were no differences on any of the global items in terms of employer satisfaction with the performance of graduates in different occupational categories.

Structural Analysis of the Employer Questionnaire

Section One questions about the value of various educational experiences for a person holding a particular job were of only marginal utility. Employers showed very little inclination to rate any college experience as less than important for most positions. However, factor analysis of employer responses in Section Two provides evidence that employers do think in terms of three sets of skills—basic, technical, and interpersonal—when they think of positions and the importance of various skills to successful job performance (see Table 2). Basic skills are those of reading, writing, and speaking effectively. Technical skills have to do with problem-solving and working with numbers and computers. Interpersonal skills include the ability to work cooperatively and to lead as well as to handle multiple tasks with minimal supervision. The same dimensional structure can be developed for the importance ratings (the degree to which a skill is seen as important for a job) and the performance ratings (the evaluation of graduates' performance by their supervisors on the same items).

The unique characteristics of the data collected are revealed in a model of the evaluation process (see Figure 1). The overall employer performance rating is cast as the dependent variable, and path analysis is used to estimate the effects of independent variables representing the entering ACT score, high school and college grade-point averages, and mother's education of responding graduates, as well as their performance scores on scales constructed from variables loading on the three performance dimensions described earlier. Forty-two percent of the variance in overall employee rating is explained

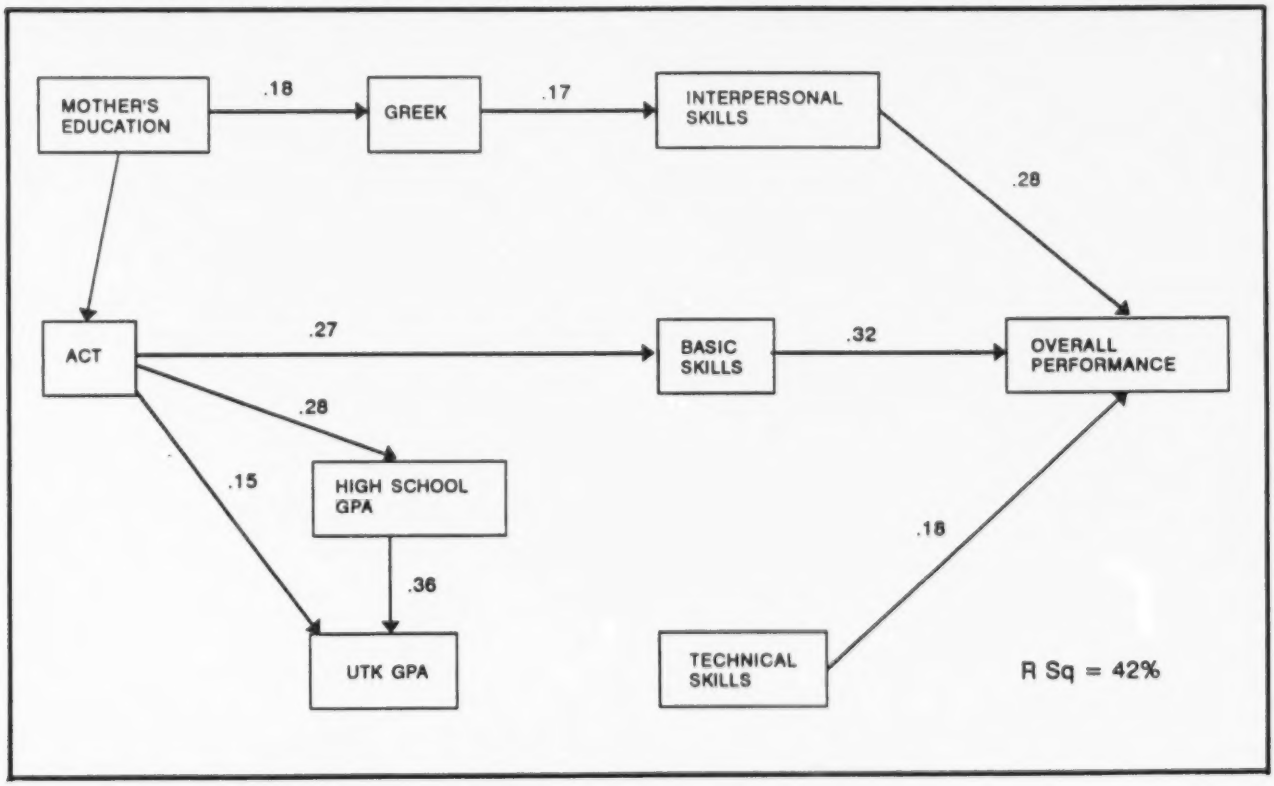

FIGURE 1: MODEL OF OVERALL PERFORMANCE EVALUATION

in the resulting model. The entering ACT score is almost as good at predicting performance ratings as is the employer's judgment of basic skills performance of the graduate **on the job**, and the variation among graduates in terms of college grade point average is remarkably unrelated to any performance measure.

LIMITATIONS OF THE DESIGN AND METHODS OF IMPLEMENTATION

Since all 1987-88 graduates at the institutions participating in this study were scheduled to receive a mailed questionnaire in 1990, the consortium representatives made the pragmatic decision to use this alumni survey—an instrument with a history of rather successful use in the state—as the basis for its proposed employer survey. Thus it was not possible to include the request for permission to contact the employer in the initial mailing to graduates. Telephone contact with graduates for the purpose of obtaining permission, a proven technique for increasing response rates, was ruled out primarily due to its cost. Moreover, there is within the consortium a long-standing tradition of using mail surveys, and the principals in the study felt that more information could be collected more systematically by mail than by telephone. Quantity and quality of the resulting data were also factors in the decision to use a predetermined set of questions for employers as opposed to an open-ended format. Unfortunately, the literature contains evidence that employers provide almost uniformly high positive responses when the response categories are established for them.

While the rate of return from employers in this study was relatively high, the total number of employer questionnaires available for analysis was small because so few graduates gave their permission for contact to be made with their employers. Although alumni granting permission did not differ on important demographic characteristics from their classmates who did not return the permission form, the group giving permission did appear to be more gregarious and involved in their careers, as evidenced in their contacts with faculty while in college and in their greater rates of participation after college in job-related seminars and professional organizations.

Strengths of the Design and Methods of Implementation

FIPSE funding made it possible for institutions separated by as much as 500 miles to plan a common survey methodology suitable for use at both two-year and four-year institutions and thus capable of generating comparative data based on institutional type that had not been available for analysis heretofore. FIPSE funds also supported the development of a clear and relatively simple method of using the *Dictionary of Occupational Titles* (U.S. Employment Service, 1977) to classify occupations that can be applied in other surveys. The alumni survey, coupled with data from student records, provided a wealth of information about graduates' college experiences. Having these data made it possible to construct a model of factors contributing to employers' assessment of employee performance.

Finally, there were several pieces of evidence that the employer survey developed for use in this study is technically sound. Employers returned it at a rate exceeding 90 percent, and even though given the opportunity to write comments, they made no negative comments about the questionnaire and few marks on the instrument itself that indicated frustration with the response alternatives. Additionally, employers' ratings of the importance of specified educational experiences and employee attributes were related in expected ways to occupational classification.

The factor analysis and subsequent path analysis used to construct the model of employer evaluation of overall employee performance demonstrated the utility of the multi-phase, multi-level approach used in this research. The factor analyses strongly suggest that employers think in terms of three dimensions—basic, technical, and interpersonal skills—as they evaluate employee performance, and that basic and interpersonal skills are more important factors in this evaluation than are specific job-related technical skills. The other background characteristics make it possible to explore the varying levels of influence that such experiences and characteristics have on development of the skills employers value.

CONCLUSION

This study produced an employer survey capable of serving the interests of two- and four-year institutions and of attracting a high rate of return on the part of employers. The methodology also incorporated an alumni questionnaire that contributed important information about the background characteristics and college experiences of the graduates who responded. However, the percentage of alumni giving permission for subsequent contact with their employers was disappointingly low.

The findings of the initial phase of this research raise questions about the utility of a mail survey for employers that uses predetermined questions and a multiple-choice response mode. Employers' responses are so positive that they appear to be systematically biased in some way. The Hawthorne effect may be operating; that is, employers are so pleased to be invited to share their opinions about employees with colleges and universities that they tend to respond positively. Perhaps graduates give permission only when they feel their employer is the type of person who will say positive things about them. Yet another alternative is that, in fact, the positive ratings reflect reality: Most employees have been selected carefully and trained on the job, and they remain employed because they are doing satisfactory work, thus satisfying their employers. Further study of this question is clearly needed.

The authors' experience to date indicates that no matter how good the questionnaire, mailing a request for permission to alumni, then mailing a multiple-choice questionnaire to employers, is a methodology with inherent problems. Permission-granting rates for alumni will be low, and employers' questionnaire responses will be highly positive, showing little variance. Telephone contact with graduates to obtain permission, coupled with face-to-face follow-up interviews with a sample of employers who have completed the mailed survey, appears to be a more promising method for future research. In addition, items on the questionnaire for employers could be constructed to force respondents to distribute a given number of points over a group of response categories, thus compelling them to make decisions about the relative worth of the options.

Finally, if an important goal of higher education is to prepare graduates for employment, employers' responses provide strong evidence that faculty should focus their efforts particularly upon strengthening the basic skills and interpersonal skills of their students. Specialized skills imparted by education in the major field are of secondary importance when compared with these fundamental competences. This finding also has implications for the assessment of outcomes in higher education: Future efforts should be aimed at developing better measures of students' basic skills and interpersonal skills. In addition, developers of comprehensive campus assessment programs should be strongly encouraged to include these measures in their schedules of activities.

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